ABSTRACT OF COST

Abstract of Cost - Bill Wise			
Sl. No.	**Bill No.**	**Items**	**Amount (Rs)**
A		**ROAD WORKS**	
1	Bill No.1	Site Clearance & Dismantling	9,932,461.58
2	Bill No.2	Earthworks	228,521,549.75
3	Bill No.3	Sub-base and Base Courses	940,043,282.31
4	Bill No.4	Bituminous Works	353,360,371.94
B		**BRIDGES AND STRUCTURES**	
5	Bill No.5A &5B	Culverts(Pipe/Slab,Box)	283,403,494.89
6	Bill No.5C	Culverts Widening @60000 per Sqm	1,380,000.00
7	Bill No.6	Bridges	126,667,924.22
C		**OTHER APPURENENCE/MISCELLANEOUS ITEMS**	
8	Bill No.7	Drainage and Protection works	1,054,149,676.94
9	Bill No.8A	Junctions	100,040,713.11
10	Bill No.8B	Bus Shelter	35,158,101.29
11	Bill No.9	Traffic Sign,Marking and other Appurtenances	84,127,149.68
		Total of Construction Cost,(Bill No.1 to Bill No.9)	3,216,784,725.71
		Total Project cost (A)	3,216,784,725.71

Abstract of Cost - TCS Wise		
Bill No.	**Items**	**Amount (Rs)**
I	**Widening of Existing Alignment**	
	TCS (Type-I)	
	Site Clearance and Dismantling	3,459,441.95
	Earthworks	84,696,695.96
	Sub-base and Base Courses	352,619,305.21
	Pavement	
	Bituminous Pavement	105,328,724.26
	Traffic Sign,Marking and Other Appurtenances	29,301,194.70
	Total	**575,405,362.07**
	TCS (Type-II)	
	Site Clearance and Dismantling	3,904,580.05
	Earthworks	61,732,969.32
	Sub-base and Base Courses	336,451,407.66
	Pavement	
	Bituminous Pavement	169,831,039.44
	Traffic Sign,Marking and Other Appurtenances	33,071,478.56
	Total	**604,991,475.03**
	TCS (Type-III)	
	Site Clearance and Dismantling	1,096,143.50
	Earthworks	28,396,281.71
	Sub-base and Base Courses	101,282,748.81
	Pavement	
	Bituminous Pavement	33,373,994.39
	Traffic Sign,Marking and Other Appurtenances	9,284,247.14
	Total	**173,433,415.55**
	TCS (Type-IV)	
	Site Clearance and Dismantling	1,120,106.89
	Earthworks	38,648,939.57
	Sub-base and Base Courses	114,171,972.77
	Pavement	
	Bituminous Pavement	34,103,601.42
	Traffic Sign,Marking and Other Appurtenances	9,487,215.12
	Total	**197,531,835.77**
	TCS (Type-V)	
	Site Clearance and Dismantling	352,189.20
	Earthworks	15,046,663.19
	Sub-base and Base Courses	35,517,847.86
	Pavement	
	Bituminous Pavement	10,723,012.44
	Traffic Sign,Marking and Other Appurtenances	2,983,014.15
	Total	**64,622,726.85**

Abstract of Cost - TCS Wise		
Bill No.	**Items**	**Amount (Rs)**
5	**Culverts (Pipe/ Box)**	
5A	Hume Pipe Culvert	37,881,696.03
5B	Box Culvert	245,521,798.86
5C	Pipe Culvert Widening @60000 Per Sqm	1,380,000.00
	Total	**284,783,494.89**
6	**Bridges**	
6A	Minor Bridge (Reconstruction)	66,470,224.22
6B	Minor Bridge (Widening)	60,197,700.00
	Total	**126,667,924.22**
7	**Drainage and Protection Works**	
7A	Drainage	476,901,454.69
7B	Protection Works	577,248,222.25
	Total	**1,054,149,676.94**
III	**OTHER ITEMS**	
8A	**Minor Junction (52 Nos.)**	
	Earthworks	21,050,016.00
	Sub-base and Base Courses	48,806,415.84
	Bituminous Pavement	24,636,081.60
	Traffic Sign,Marking and Other Appurtenances	5,548,199.67
	Total	**100,040,713.11**
8B	**Bus Shelter**	
	Earthworks	7,463,728.70
	Sub-base and Base Courses	10,111,688.20
	Bituminous Pavement	5,104,090.75
	Traffic Sign,Marking and Other Appurtenances	12,478,593.63
	Total	**35,158,101.29**
A	**Civil Construction Cost for the Year 2016-17**	**3,216,784,725.71**
	In Rs. Crores	**321.678**
	Per Km Cost (in Crores)	5.879

COST ESTIMATE

COST ESTIMATE- WIDENING OF EXISTING ALIGNMENT

Item No.	Description	Unit	Qty	Rate (in Rs.)	Amount (Rs.)
Bill No 1: SITE CLEARANCE					
1.01	**Clearing and Grubbing Road Land .**				
	Clearing and grubbing road land including uprooting rank vegetation, grass, bushes, shrubs, saplings and trees girth up to 300 mm, removal of stumps of trees cut earlier and disposal of unserviceable materials and stacking of serviceable material to be used or auctioned, up to a lead of 1000 metres including removal and disposal of top organic soil not exceeding 150 mm in thickness.	Ha	65.65	65584.35	4305901.15
1.02	**Cutting of Trees, including cutting of Trunks, Branches and Removal**	no.			
	Cutting of trees, including cutting of trunks, branches and removal of stumps, roots, stacking of serviceable material with all lifts and up to a lead of 1000 metres and earth filling in the depression/pit.				
i	**Girth from 300 mm to 600 mm**	No.	3500.00	311.08	1088780.00
ii	**Girth from 600 mm to 900 mm**	No.	1800.00	547.42	985356.00
iii	**Girth from 900 mm to 1800 mm**	No.	1600.00	1076.66	1722656.00
iv	**Girth above 1800 mm**	No.	600.00	2053.33	1231998.00
1.03	**Dismantling of Structures**				
i	Dismantling of existing structures like culverts, bridges, retaining walls and other structure comprising of masonry, cement concrete, wood work, steel work, including T&P and scaffolding wherever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts and lead of 1000 metres				
a	Cement Concrete Grade M-15 & M-20 in culverts	cum	824.98	539.34	444,945.79
e	Removing all type of hume pipes and stacking within a lead of 1000 metres including earthwork and dismantling of masonry works.		-		
	(I) Above 600 mm to 900 mm dia	m	397.55	307.04	122,063.75
vii	**Dismantling of Flexible Pavements**				
	Dismantling of flexible pavements and disposal of dismantled materials up to a lead of 1000 metres, stacking serviceable and unserviceable materials separately				
a	Bituminous courses	Cum	10.49	331.28	3474.7
1.07	**Dismantling of Kilometre Stone**				
	Dismantling of kilometre stone including cutting of earth, foundation and disposal of dismantled material with all lifts and lead upto 1000 m and back filling of pit.	no.			
i	5th KM stone		20.00	447.43	8948.6
ii	Ordinary KM Stone		68.00	269.67	18337.6
				Sub Total =	**9932461.6**

COST ESTIMATE- WIDENING OF EXISTING ALIGNMENT

Item No.	Description	Unit	Quantity					Rate (in Rs.)	Amount (in Rs)				
			TCS Type-I	TCS Type-II	TCS Type-III	TCS Type-IV	TCS Type-V		TCS Type-I	TCS Type-II	TCS Type-III	TCS Type-IV	TCS Type-V
Length of TCS (Km)			**19.056**	**21.508**	**6.038**	**6.170**	**1.940**		**19.056**	**21.508**	**6.038**	**6.170**	**0.679**
Bill No 2: EARTH WORK													
2.01	**Excavation in Soil using Hydraulic Excavator CK 90 and Tippers with Disposal upto 1000 metres.**												
i	Excavation for roadwork in soil with hydraulic excavator of 0.9 cum bucket capacity including cutting and loading in tippers, trimming bottom and side slopes, in accordance with requirements of lines, grades and cross sections, and transporting to the embankment location within all lifts and lead upto 1000m	cum	133392	225834	90570	92550	0	51.51	6871021.92	11632709.34	4665260.70	4767250.50	0.00
2.02	**Construction of Embankment below sub grade with Material Deposited from Roadway Cutting**												
	Construction of embankment with approved materials deposited at site from roadway cutting and excavation from drain and foundation of other structures graded and compacted to meet requirement of table 300-2.	cum	0	0	36228	6170	32592	147.46	0.00	0.00	5342180.88	909828.20	4806016.32
2.03	**Construction of Sub grade with approved Material obtained from Borrowpits**												
	Construction of embankment with approved material obtained from borrow pits with all lifts and leads, transporting to site, spreading, grading to required slope and compacting to meet requirement of table 300-2.	cum	101663.76	61835.50	23336.87	46028.20	14259.00	592.87	60273393.39	36660412.89	13835730.12	27288738.93	8453733.33
2.04	**Construction of Earthen Shoulders**												
	Construction of Median and earthen shoulders with approved material obtained from borrow pits with all lifts & leads, transporting to site, spreading, grading to required slope and compacted to meet requirement of table No. 300-2	cum	8956.32	0.00	1237.79	2899.90	911.80	630.24	5644631.12	0.00	780104.77	1827632.98	574652.83
								SubTotal =	**72789046.4**	**48293122.2**	**24623276.5**	**34793450.6**	**13834402.5**

COST ESTIMATE- WIDENING OF EXISTING ALIGNMENT

Item No.	Description	Unit	Quantity					Rate (in Rs.)	Amount (in Rs)				
			TCS Type-I	TCS Type-II	TCS Type-III	TCS Type-IV	TCS Type-V		TCS Type-I	TCS Type-II	TCS Type-III	TCS Type-IV	TCS Type-V
Bill No 3: SUB BASE & BASE COURSES													
3.01	**Granular Sub-Base with Cement Treated Crushed Rock**												
	Cement Treated Crushed Rock or combination as per clause 403.2 and table 400.4in Sub base/ Base (Providing, laying and spreading Material on a prepared sub grade, adding the designed quantity of cement to the spread Material, mixing in place with rotavator, grading with the motor grader and compacting with the road roller at OMC to achieve the desired unconfined compressive strength and to form a layer of sub-base/base.)	Cum	63932.88	53770.00	17329.06	20700.35	6402.00	3567.32	228069041.48	191814796.40	61818302.32	73844772.56	22837982.64
3.02	**Construction of hard shoulder with Granular Sub-Base with Close Graded Material (Table:-400-1)**												
	Construction of Hard shoulder by providing close graded material, spreading in uniform layers with motor grader on prepared surface, mixing by mix in place method with rotavator at OMC, and compacting with vibratory roller to achieve the desired density, complete as per clause 401 (Grading-III of Table 400-2).	Cum	13148.64	0.00	4166.22	4257.30	1338.60	2650.24	34847051.67	0.00	11041482.89	11282866.75	3547611.26
3.03	**Granular Base with Cement Treated Crushed Rock**												
	Cement Treated Crushed Rock or combination as per clause 403.2 and table 400.4in Sub base/ Base (Providing, laying and spreading Material on a prepared sub grade, adding the designed quantity of cement to the spread Material, mixing in place with rotavator, grading with the motor grader and compacting with the road roller at OMC to achieve the desired unconfined compressive strength and to form a layer of sub-base/base.)	Cum	24010.56	38714.40	7607.88	7774.20	2444.40	3735.99	89703212.05	144636611.26	28422963.60	29044333.46	9132253.96
								SubTotal =	**352619305.2**	**336451407.7**	**101282748.8**	**114171972.8**	**35517847.9**

COST ESTIMATE- WIDENING OF EXISTING ALIGNMENT

Item No.	Description	Unit	Quantity					Rate (in Rs.)	Amount (in Rs)				
			TCS Type-I	TCS Type-II	TCS Type-III	TCS Type-IV	TCS Type-V		TCS Type-I	TCS Type-II	TCS Type-III	TCS Type-IV	TCS Type-V
Bill No 4: BITUMINOUS COURSES (FLEXIBLE PAVEMENT)													
4.01	**Prime Coat**												
	Providing and applying primer coat with bitumen emulsion on prepared surface of granular Base including clearing of road surface and spraying primer at the rate of 0.6 kg/sqm using mechanical means as per clause 502.	Sqm	133392.00	215080.00	42266.00	43190.00	13580.00	21.21	2829244.32	4561846.80	896461.86	916059.90	288031.80
4.02	**SAMI Interface**												
	Stress Absorbing Membrane (SAM) with crack width 6 mm to 9 mm (Providing and laying of a stress absorbing membrane over a cracked road surface, with crack width 6 to 9 mm after cleaning with a mechanical broom, using modified binder complying with clause 521, sprayed at the rate of 11 kg per 10 sqm and spreading 11.2 mm crushed stone aggregates @ 0.12 cum per 10 sqm, sweeping the surface for uniform spread of aggregates and surface finished to conform to clause 902.)	Sqm	133392.00	215080.00	42266.00	43190.00	13580.00	97.97	13068414.24	21071387.60	4140800.02	4231324.30	1330432.60
4.03	**Bituminous Concrete**												
	Providing and laying bituminous concrete with 100-120 TPH batch type hot mix plant producing an average output of 75 tonnes per hour using crushed aggregates of grading-I, premixed with bituminous binder grade VG-30 @ 5.5 per cent of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MORTH specification clause No. 509 complete in all respects	Cum	6669.60	10754.00	2113.30	2159.50	679.00	13408.76	89431065.70	144197805.04	28336732.51	28956217.22	9104548.04
								SubTotal =	**105328724.3**	**169831039.4**	**33373994.4**	**34103601.4**	**10723012.4**
								TOTAL =	**530737075.9**	**554575569.3**	**159280019.7**	**183069024.8**	**60075262.8**

COST ESTIMATE- WIDENING OF EXISTING ALIGNMENT

Item No.	Description	Unit	Qty	Rate (in Rs.)	Amount (Rs.)
Bill No. 5A: PIPE CULVERT					
5A.01	**Excavation for Structures**				
	Earth work in excavation of foundation of structures as per drawing and technical specification, including setting out, construction of shoring and bracing, removal of stumps and other deleterious matter, dressing of sides and bottom and backfilling with approved material.	cum	2698.38	169.68	457861.31
5A.02	**1st Class Bedding below Pipe**				
	Providing 1 st class bedding below pipes with graded sand or other granular materials passing through 5.6 mm sieve as per vlause 2904	cum	1198.39	7103.33	8512541.88
5A.03	**PCC/ RCC in Open foundation**				
	Plain/Reinforced Cement Concrete in Open Foundation complete as per Drawing and Technical Specifications.				
	PCC Grade M15	cum	191.09	10727.21	2049884.55
5A.04	**PCC/ RCC in Substructure**				
	Plain cement concrete in sub-structure complete as per drawing and Technical Specifications				
	PCC Grade M20	cum	1295.66	13910.73	18023567.86
5A.05	**Laying NP4 Pipe**				
	Laying Reinforced cement concrete pipe NP4/prestressed concrete pipe for culverts on first class bedding of granular material in single row including fixing collar with cement mortar 1:2 but excluding excavation, protection works, backfilling, concrete and masonry works in head walls and parapets .				
	Single Row	Rm	645.00	6356.94	4100226.30
	Double Row	Rm	120.00	13415.83	1609899.60
5A.06	**Pitching on Slopes**				
	Providing and laying Pitching on slopes laid over prepared filter media including boulder apron laid dry in front of toe of embankment complete as per drawing and Technical specifications	cum	427.45	3967.28	1695795.11
5A.07	**Laying Filter Material underneath Pitching**				
	Providing and laying Filter material underneath pitching in slopes complete as per drawing and Technical specification	cum	213.72	3005.76	642398.96
5A.08	**Laying Boulder Apron**				
	Providing and laying boulders apron on river bed for protection against scour with stone boulders weighing not less than 40 kg each complete as per drawing and Technical specification.	cum	199.01	3967.28	789520.46
				Sub Total =	**37881696.0**

DETAILED ESTIMATE OF
BOX CULVERT

Bill No. 5B : Box Culvert						
Sl. No.	**Ref. to MoRTH Spec.**	**Item Description**	**Unit**	**Quantity**	**Rate**	**Amount (in Rs.)**
		FOUNDATION				
1	**304**	**Excavation for Structures** Earthwork in excavation for structures as per drawing and technical specifications Clause 305.1 including setting out, construction of shoring and bracing, removal of stumps and other deleterious material and disposal upto a lead of 50 m, dressing of sides and bottom and backfilling in trenches with excavated suitable material.				
		I. Ordinary Soil				
		i) Upto 3m depth	Cum	18,720.781	66.66	1247927.25
2	**1500, 1700 & 2100**	Providing and laying of PCC M15 levelling course below bottom Slab & Retaning wall & Curtain wall.	Cum	1,117.286	11,888.71	13283083.67
						14531010.92
		SUBSTRUCTURE				
3	**1500, 1700 & 2200**	R.C.C. grade M 25 in Sub Structure complete as per Dwg & Tech Specification.				
		i) Upto 5m height (Using Concrete Mixer)	Cum	3,923.667	15,706.51	61627112.52
		ii) From 5m upto 10m height (Using Concrete Mixer)	Cum	0.000	16,220.60	0.00
4	**1600 & 2200**	Supplying, fitting and placing HYSD bar reinforcement (Fe-500) in substructrue complete as per drawings and technical specification Clauses 1002, 1005, 1010 & 1202	t	371.325	67,310.44	24994065.41
5	**2706 & 2200**	**Providing weepholes** in brick masonry/stone masonry, plain/reinforced concrete abutment, wing wall, return wall with 100 mm dia AC pipe extending through the full width of the structures with slope of 1(V):20(H) towards drawing face complete as per drawing and technical specification Clauses 614, 709, 1204.3.7	Nos	3,420	154.53	528492.60
6	**2200**	**Backfilling** behind abutment, wing wall and retaining wall complete as per drawings & technical specification Clause 1204.3.8				
		I) Sandy Material	Cum	9,861.71	7,103.33	70050992.93
7	**2200**	**Providing and laying filter media** with granular crushed aggregates as per specification to a thickness of not less than 600 mm with smaller size towards the soil and bigger size towards the wall and providing over the entire surface behind abutment, wing wall, return wall to the full height, compacted to firm condition complete as per drawing and technical specification Clause 1204.3.8	Cum	5,453.628	2760.33	15053812.98
						172254476.43

DETAILED ESTIMATE OF
BOX CULVERT

Sl. No.	Ref. to MoRTH Spec.	Item Description	Unit	Quantity	Rate	Amount (in Rs.)
		SUPERSTRUCTURE				
8	**1500 &1600 1700**	Providing and laying reinforced cement concrete in superstructure complete as per drawing and technical specifications Clauses 800, 1205.4 and 1205.5. **RCC M-25**				
		Up to 5m height	Cum	518.770	17,064.96	8852789.30
		Height from 5m to 10m	Cum	0.000	17,776.00	0.00
9	**1600**	Supplying, fitting and placing HYSD bar reinforcement (Fe 500) in superstructrue complete as per drawings and technical specification Clauses 1002, 1010 & 1202	t	51.877	68,867.86	3572657.97
10	**2702**	Providing and laying cement concrete **wearing course M30 grade** including reinforcement complete as per drawing and technical specifications Clauses 800 and 1206.3	Cum	185.681	19,725.30	3662618.36
11	**2703, 1500, 1600 & 1700**	**Construction of R.C.C. railing** of M 25 grade in cast-in-situ with 20 mm nominal size aggregate, true to line and grade, tolerance of vertical railing post not to exceed 1 in 500, centre-to-centre spacing between vertical posts not to exceed 2000 mm as per drawing and technical specifications Clauses 800, 900 and 1208.3	m	422.100	2624.99	1108008.28
12	**2705**	**Drainage Spouts** complete as per drawing and technical specifications Clause 1209	No	102	1010.00	103020.00
						17299093.91

DETAILED ESTIMATE OF
BOX CULVERT

Sl. No.	Ref. to MoRTH Spec.	Item Description	Unit	Quantity	Rate	Amount (in Rs.)
		PROTECTION WORK				
13	**1500, 1700 & 2100**	P.C.C. grade M-15 in Curtain Wall complete as per Dwg & Tech Specification.	cum	1,559.315	11,888.71	18538246.81
14	**2505**	Providing and laying flooring laid over cement concrete bedding complete as per drawing and technical specification Clause 1303. **Rubble Stone laid in Cement Mortar 1:3**	Cum	792.878	12210.90	9681751.30
15	**2503**	Providing and laying boulder apron for bed protection with stone boulders of minimum size and weight as per Table 1300.1, no fragment weighing less than 25 kg laid dry complete as per drawing and technical specifications Clause 1301.	Cum	2,138.884	3967.28	8485550.72
16	**2504**	Providing and laying **boulder pitching on slopes** laid over prepared filter media as per drawing and technical specifications Clause 1302	cum	864.996	3967.28	3431682.96
17	**2504**	Providing and laying **filter material underneath pitching** in slopes complete as per drawing and technical specifications Clause 1302	cum	432.498	3005.76	1299985.81
					Sub Total of Protection Items =	**41437217.60**
					Total Cost of Box Structure =	**245521798.86**

Bill No. 6B

S.No.	Design Chainage (Km)	Span Arrangement (m)	Type	Existing Width (m)	Total proposed width	Extent of Widening	Length(m)	Area of widening	Rate	Total Cost
1	164+529	3x6.3+4x6.3	RC Solid Slab	5.2	8.5	3.9	42.9	167.31	@95000	15894450
2	165+555	6.3 + 3 x 6.0	RC Solid Slab	5.3	8.5	3.9	24.3	94.77	@95000	9003150
3	168+362	2 x 6.0	RC Solid Slab	5.2	8.5	3.9	12	46.8	@95000	4446000
4	169+488	2x6.3+5x6.0	RC Solid Slab	5.2	8.5	3.9	42.6	166.14	@95000	15783300
5	170+099	2x6.2+2x6.0	RC Solid Slab	5.2	8.5	3.9	24.4	95.16	@95000	9040200
6	179+382	3 x 4.6	RC Solid Slab	4.5	8.5	4.6	13.8	63.48	@95000	6030600
									Total cost of widening =	**60197700**

COST ESTIMATE- WIDENING OF EXISTING ALIGNMENT

Item No.	Description	Unit	Qty	Rate (in Rs.)	Amount (Rs.)
Bill No. 7: DRAINAGE & PROTECTIVE WORKS					
	Bill No. 7A :Drainage				
7.01	**Surface Drains in Soil**				
	Construction of unlined surface drains of average cross sectional area 0.48 sqm in soil to specified lines, grades, levels and dimensions to the requirement of clause 301 and 309. Excavated material to be used in embankment within a lead of 50 meters (average lead 25 meters.	Rm	26381.76	70.70	1865190.43
7.02					
	Lined RCC Drains				
i	Earth work in excavation				
	Earth work in excavation of foundation of structures as per drawing and technical specification, including setting out, construction of shoring and bracing, removal of stumps and other deleterious matter, dressing of sides and bottom and backfilling with approved material.	cum	109690.80	169.68	18612334.94
ii	PCC Grade M15	cum	5484.54	13146.16	72100640.37
iii	RCC Grade M20	cum	21292.92	14010.72	298329140.10
iv	HYSD Steel	MT	1277.58	67310.44	85994148.85

COST ESTIMATE- WIDENING OF EXISTING ALIGNMENT

Item No.	Description	Unit	Qty	Rate (in Rs.)	Amount (Rs.)
				Sub Total =	**476901454.69**
	Bill No. 7B : Protection Work				
7.04	Stone masonry work in cement mortar 1:3 for substructure complete as per drawing and Technical Specifications.				
i	Earth work in excavation				
	Earth work in excavation of foundation of structures as per drawing and technical specification, including setting out, construction of shoring and bracing, removal of stumps and other deleterious matter, dressing of sides and bottom and backfilling with approved material.				
	Breast Wall and Retaining wall	Cum	26706.20	66.66	1780235.29
ii	Stone masonry work in cement mortar 1:3 for substructure complete as per drawing and Technical Specifications.				
	A.) Random Rubble Masonry				
	Breast Wall and Retaining wall	Cum	55015.30	8027.00	441607813.10
vi	Providing weep holes in Brick masonry/Plain/ Reinforced concrete abutment, wing wall/ return wall with 100 mm dia AC pipe, extending through the full width of the structure with slope of 1V :20H towards drawing foce. Complete as per drawing and Technical Specifications				
	Breast Wall and Retaining wall	No.	14454.00	154.53	2233576.62
vii	Back filling behind abutment, wing wall and return wall complete as per drawing and Technical Specification				
	Breast Wall and Retaining wall	cum	13344.60	7103.33	94791097.52
viii	Providing and laying of Filter media with granular materials/stone crushed aggregates satisfying the requirements laid down in clause 2504.2.2. of MoRTH specifications to a thickness of not less than 600 mm with smaller size towards the soil and bigger size towards the wall and provided over the entire surface behind abutment, wing wall and return wall to the full height compacted to a firm condition complete as per drawing and Technical Specification.				
	Breast Wall and Retaining wall	cum	13344.60	2760.33	36835499.72
				Sub Total =	**577248222.25**

COST ESTIMATE- WIDENING OF EXISTING ALIGNMENT

Item No.	Description	Unit	Qty	Rate (in Rs.)	Amount (Rs.)
Bill No. 8A: MINOR JUNCTIONS					
	Earthwork Items				
2.01	**Excavation in Soil using Hydraulic Excavator**				
	Excavation for roadwork in soil with hydraulic excavator of 0.9 cum bucket capacity including cutting and loading in tippers, trimming bottom and side slopes, in accordance with requirements of lines, grades and cross sections, and transporting to the embankment location within all lifts and lead upto 1000m	cum	8320.00	51.51	428563.2
2.02	**Construction of Embankment with Material Deposited from Roadway Cutting**				
	Construction of embankment with approved materials deposited at site from roadway cutting and excavation from drain and foundation of other structures graded and compacted to meet requirement of table 300-2.	cum	4,160.00	147.46	613433.6
2.03	**Construction of Embankment with Material obtained from Borrowpits**				
	Construction of embankment with approved material obtained from borrow pits with all lifts and leads, transporting to site, spreading, grading to required slope and compacting to meet requirement of table 300-2.	cum	8320.00	592.87	4932678.4
2.04	**Construction of Subgrade and Earthen Shoulders**				
	Construction of sub-grade and earthen shoulders with approved material obtained from borrow pits with all lifts & leads, transporting to site, spreading, grading to required slope and compacted to meet requirement of table No. 300-2	cum	23920.00	630.24	15075340.8
				Sub Total =	**21050016.0**
	Sub Base and Base Courses				
3.01	**Granular Sub-Base with Cement Treated Crushed Rock**				
	Cement Treated Crushed Rock or combination as per clause 403.2 and table 400.4in Sub base/ Base (Providing, laying and spreading Material on a prepared sub grade, adding the designed quantity of cement to the spread Material, mixing in place with rotavator, grading with the motor grader and compacting with the road roller at OMC to achieve the desired unconfined compressive strength and to form a layer of sub-base/base.)	Cum	7800.0	3567.3	27825096.0

COST ESTIMATE- WIDENING OF EXISTING ALIGNMENT

Item No.	Description	Unit	Qty	Rate (in Rs.)	Amount (Rs.)
3.02	**Granular Base with Cement Treated Crushed Rock**				
	Cement Treated Crushed Rock or combination as per clause 403.2 and table 400.4in Sub base/ Base (Providing, laying and spreading Material on a prepared sub grade, adding the designed quantity of cement to the spread Material, mixing in place with rotavator, grading with the motor grader and compacting with the road roller at OMC to achieve the desired unconfined compressive strength and to form a layer of sub-base/base.)	Cum	5616.0	3736.0	20981319.8
				Sub Total =	**48806415.8**
	Bituminous Courses (Flexible Pavement)				
4A.01	**Prime Coat**				
	Providing and applying primer coat with bitumen emulsion on prepared surface of granular Base including clearing of road surface and spraying primer at the rate of 0.6 kg/sqm using mechanical means as per clause 502.	Sqm	31200.0	21.2	661752.0
4A.03	**SAMI Interface**				
	Stress Absorbing Membrane (SAM) with crack width 6 mm to 9 mm (Providing and laying of a stress absorbing membrane over a cracked road surface, with crack width 6 to 9 mm after cleaning with a mechanical broom, using modified binder complying with clause 521, sprayed at the rate of 11 kg per 10 sqm and spreading 11.2 mm crushed stone aggregates @ 0.12 cum per 10 sqm, sweeping the surface for uniform spread of aggregates and surface finished to conform to clause 902.)	Sqm	31200.0	97.97	3056664.0
4A.04	**Bituminous Concrete**				
	Providing and laying bituminous concrete with 100-120 TPH batch type hot mix plant producing an average output of 75 tonnes per hour using crushed aggregates of grading-I, premixed with bituminous binder grade VG-30 @ 5.5 per cent of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MORTH specification clause No. 509 complete in all respects	Cum	1560.0	13408.76	20917665.6
				Sub Total =	**24636081.6**

COST ESTIMATE- WIDENING OF EXISTING ALIGNMENT

Item No.	Description	Unit	Qty	Rate (in Rs.)	Amount (Rs.)
	Traffic Appurtenances				
9.1	**Cast in Situ Cement Concrete M20 Kerb**				
	Construction of cement concrete kerb with top and bottom width 115 and 165 mm respectively, 250 mm high in M 20 grade PCC on M-10 grade foundation 150 mm thick, foundation having 50 mm projection beyond kerb stone, kerb stone laid with kerb laying machine, foundation concrete laid manually, all complete as per clause 408	Rm	3120.00	709.02	2212142.40
9.2	**Construction of Median**				
	Construction of Median and Island with Soil Taken from Roadway Cutting (Construction of Median and Island above road level with approved material deposited at site from roadway cutting and excavation for drain and foundation of other structures, spread, graded and compacted as per clause 407)	Cum	117.0	374.71	43841.07
9.3	**Construction of Footpath/ Separator**				
	Construction of footpath/separator by providing a 150 mm compacted granular sub base as per clause 401 and 25 mm thick cement concrete grade M15, over laid with precast concrete tiles in cement mortar 1:3 including provision of all drainage arrangements but excluding kerb channel.	Sqm	2340.0	1406.9	3292216.20
				Sub Total =	**5548199.7**
				Total	**100040713.11**

COST ESTIMATE- WIDENING OF EXISTING ALIGNMENT

Item No.	Description	Unit	Qty	Rate (in Rs.)	Amount (Rs.)
	Bill No. 8B: BUS SHELTER				
	Earthwork Items				
2.01	**Excavation in Soil using Hydraulic Excavator**				
	Excavation for roadwork in soil with hydraulic excavator of 0.9 cum bucket capacity including cutting and loading in tippers, trimming bottom and side slopes, in accordance with requirements of lines, grades and cross sections, and transporting to the embankment location within all lifts and lead upto 1000m	cum	2681.60	51.51	138129.2
2.02	**Construction of Embankment with Material Deposited from Roadway Cutting**				
	Construction of embankment with approved materials deposited at site from roadway cutting and excavation from drain and foundation of other structures graded and compacted to meet requirement of table 300-2.	cum	1,340.80	147.46	197714.4
2.03	**Construction of Embankment with Material obtained from Borrowpits**				
	Construction of embankment with approved material obtained from borrow pits with all lifts and leads, transporting to site, spreading, grading to required slope and compacting to meet requirement of table 300-2.	cum	2681.60	592.87	1589840.2
2.04	**Construction of Subgrade and Earthen Shoulders**				
	Construction of sub-grade and earthen shoulders with approved material obtained from borrow pits with all lifts & leads, transporting to site, spreading, grading to required slope and compacted to meet requirement of table No. 300-2	cum	8787.20	630.24	5538044.9
				Sub Total =	**7463728.7**
	Sub Base and Base Courses				
3.01	**Granular Sub-Base with Cement Treated Crushed Rock**				
	Cement Treated Crushed Rock or combination as per clause 403.2 and table 400.4in Sub base/ Base (Providing, laying and spreading Material on a prepared sub grade, adding the designed quantity of cement to the spread Material, mixing in place with rotavator, grading with the motor grader and compacting with the road roller at OMC to achieve the desired unconfined compressive strength and to form a layer of sub-base/base.)	Cum	1616.0	3567.32	5764789.1

COST ESTIMATE- WIDENING OF EXISTING ALIGNMENT

Item No.	Description	Unit	Qty	Rate (in Rs.)	Amount (Rs.)
3.02	**Granular Base with Cement Treated Crushed Rock**				
	Cement Treated Crushed Rock or combination as per clause 403.2 and table 400.4in Sub base/ Base (Providing, laying and spreading Material on a prepared sub grade, adding the designed quantity of cement to the spread Material, mixing in place with rotavator, grading with the motor grader and compacting with the road roller at OMC to achieve the desired unconfined compressive strength and to form a layer of sub-base/base.)	Cum	1163.5	3735.99	4346899.1
				Sub Total =	**10111688.2**
	Bituminous Courses (Flexible Pavement)				
4A.01	**Prime Coat**				
	Providing and applying primer coat with bitumen emulsion on prepared surface of granular Base including clearing of road surface and spraying primer at the rate of 0.6 kg/sqm using mechanical means as per clause 502.	Sqm	6464.0	21.2	137101.4
4A.03	**SAMI Interface**				
	Stress Absorbing Membrane (SAM) with crack width 6 mm to 9 mm (Providing and laying of a stress absorbing membrane over a cracked road surface, with crack width 6 to 9 mm after cleaning with a mechanical broom, using modified binder complying with clause 521, sprayed at the rate of 11 kg per 10 sqm and spreading 11.2 mm crushed stone aggregates @ 0.12 cum per 10 sqm, sweeping the surface for uniform spread of aggregates and surface finished to conform to clause 902.)	Sqm	6464.0	98.0	633278.1
4A.04	**Bituminous Concrete**				
	Providing and laying bituminous concrete with 100-120 TPH batch type hot mix plant producing an average output of 75 tonnes per hour using crushed aggregates of grading-I, premixed with bituminous binder grade VG-30 @ 5.5 per cent of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MORTH specification clause No. 509 complete in all respects	Cum	323.2	13408.76	4333711.2
				Sub Total =	**5104090.8**

COST ESTIMATE- WIDENING OF EXISTING ALIGNMENT

Item No.	Description	Unit	Qty	Rate (in Rs.)	Amount (Rs.)
	Traffic Appurtenances				
9.1	**Cast in Situ Cement Concrete M20 Kerb**				
	Construction of cement concrete kerb with top and bottom width 115 and 165 mm respectively, 250 mm high in M 20 grade PCC on M-10 grade foundation 150 mm thick, foundation having 50 mm projection beyond kerb stone, kerb stone laid with kerb laying machine, foundation concrete laid manually, all complete as per clause 408	Rm	2880.00	719.12	2071065.60
9.2	**Construction of Median**				
	Construction of Median and Island with Soil Taken from Roadway Cutting (Construction of Median and Island above road level with approved material deposited at site from roadway cutting and excavation for drain and foundation of other structures, spread, graded and compacted as per clause 407)	Cum	365.2	359.56	131311.31
9.3	**Construction of Footpath/ Separator**				
	Construction of footpath/separator by providing a 150 mm compacted granular sub base as per clause 401 and 25 mm thick cement concrete grade M15, over laid with precast concrete tiles in cement mortar 1:3 including provision of all drainage arrangements but excluding kerb channel.	Sqm	7304.0	1406.93	10276216.72
				Sub Total =	**12478593.6**
				Total	**35158101.29**

COST ESTIMATE- WIDENING OF EXISTING ALIGNMENT

Item No.	Description	Unit	Qty	Rate (in Rs.)	Amount (Rs.)
Bill No. 9: TRAFFIC APPURTENANCES					
9.1	**Road Marking**				
	Providing and laying of hot applied thermoplastic compound 2.5 mm thick including reflectorising glass beads @ 250 gms per sqm area, thickness of 2.5 mm is exclusive of surface applied glass beads as per IRC:35 .The finished surface to be level, uniform and free from streaks and holes.				
	Lane/ Centre line/ Edge line/ Transverse marking and any other markings	Sqm	43770	859.5	37620408.9
9.2	**Retro-Reflectorised Traffic Signs**				
	Providing and fixing of retro- reflectorised cautionary, mandatory and informatory sign as per IRC :67 made of high intensity grade sheeting vide clause 801.3, fixed over aluminium sheeting, 1.5 mm thick supported on a mild steel angle iron post 75 mm x 75 mm x 6 mm firmly fixed to the ground by means of properly designed foundation with M15 grade cement concrete 45 cm x 45 cm x 60 cm, 60 cm below ground level as per approved drawing				
i	90 cm equilateral triangle	No	230	7031.62	1617272.6
ii	60 cm equilateral triangle	No	30	4943.95	148318.5
iii	60 cm circular	No	30	6310.48	189314.4
iv	80 mm x 60 mm rectangular	No	30	8429.46	252883.8
v	60 cm x 45 cm rectangular	No	130	6170.09	802111.7
vi	60 cm x 60 cm square	No	30	7138.68	214160.4
vii	90 cm high octagon	No	30	10494.91	314847.3
9.3	**Direction and Place Identification Signs Board.**				
	Providing and erecting direction and place identification retro-reflectorised sign as per IRC:67 made of high intensity grade sheeting vide clause 801.3, fixed over aluminium sheeting, 2 mm thick with area not exceeding 0.9 sqm supported on a mild steel single angle iron post 75 x 75 x 6 mm firmly fixed to the ground by means of properly designed foundation with M15 grade cement concrete 45 x 45 x 60 cm, 60 cm below ground level as per approved drawing				
i	up to 0.9 sqm size	Sqm	63	14369.3	905264.0
ii	more than 0.9 sqm size	Sqm	24	25077.3	601855.0

COST ESTIMATE- WIDENING OF EXISTING ALIGNMENT

Item No.	Description	Unit	Qty	Rate (in Rs.)	Amount (Rs.)
9.4	**Metal Beam Crash Barrier** **Type - A, "W" : Metal Beam Crash Barrier**				
	Providing and erecting a "W" metal beam crash barrier comprising of 3 mm thick corrugated sheet metal beam rail, 70 cm above road/ground level, fixed on ISMC series channel vertical post, 150 x 75 x 5 mm spaced 2 m centre to centre, 1.8 m high, 1.1 m below ground/road level, all steel parts and fitments to be galvanised by hot dip process, all fittings to conform to IS:1367 and IS:1364, metal beam rail to be fixed on the vertical post with a spacer of channel section 150 x 75 x 5 mm, 330 mm long complete as per clause 810	Rm	10689.00	3727.91	39847630.0
9.5	**Kilometre Stone**				
	Reinforced cement concrete M15grade kilometre stone of standard design as per IRC:8-1980, fixing in position including painting and printing etc				
i	**5th kilometre stone (precast)**	Nos.	20	6847.80	136956.0
ii	**Ordinary kilometer stone (precast)**	Nos.	68	4367.24	296972.3
iii	**Hectometer stone (precast)**	Nos.	540	1014.04	547581.6
9.6	**Boundary Pillar**				
	Reinforced cement concrete M15 grade boundary pillars of standard design as per IRC:25-1967, fixed in position including finishing and lettering but excluding painting	Nos.	540	1169.6	631573.2
9.7	**Reinforced Cement Concrete Crash Barrier**				
	Provision of an Reinforced cement concrete crash barrier at the edges of the road, approaches to bridge structures and medians, constructed with M-20 grade concrete with HYSD reinforcement conforming to IRC:21 and dowel bars 25 mm dia, 450 mm long at expansion joints filled with pre-moulded asphalt filler board, keyed to the structure on which it is built and installed as per design given in the enclosure to MOST circular No. RW/NH - 33022/1/94-DO III dated 24 June 1994 as per dimensions in the approved drawing and at locations directed by the Engineer, all as specified	Rm	0.00	6442.79	0.0
				TOTAL =	**84127149.7**

BOQ

QUANTITIY CALCULATION- SITE CLEARANCE & DISMANTLING							
Item No.	**Description**	**Unit**	**No.**	**Length**	**Width**	**Depth**	**Qty**
1.01	**Clearing and Grubbing Road Land .**						
	Clearing and grubbing road land including uprooting rank vegetation, grass, bushes, shrubs, saplings and trees girth up to 300 mm, removal of stumps of trees cut earlier and disposal of unserviceable materials and stacking of serviceable material to be used or auctioned, up to a lead of 1000 metres including removal and disposal of top organic soil not exceeding 150 mm in thickness.	Ha		54712.0	12.0	-	65.65
1.02	**Cutting of Trees, including cutting of Trunks, Branches and Removal**	no.					
	Cutting of trees, including cutting of trunks, branches and removal of stumps, roots, stacking of serviceable material with all lifts and up to a lead of 1000 metres and earth filling in the depression/pit.						
i	Girth from 300 mm to 600 mm		3500				3500
ii	Girth from 600 mm to 900 mm		1800				1800
iii	Girth from 900 mm to 1800 mm		1600				1600
iv	Girth above 1800 mm		600				600
1.03	**Dismantling of Structures**						
i	Dismantling of existing structures like culverts, bridges, retaining walls and other structure comprising of masonry, cement concrete, wood work, steel work, including T&P and scaffolding wherever necessary, sorting the dismantled material, disposal of unserviceable material and stacking the serviceable material with all lifts and lead of 1000 metres	cum					
a	Cement Concrete Grade M-15 & M-20 in culverts	cum					824.98
b	Cement Concrete Grade M-15 & M-20 in Bridges	cum					-
c	Dismantling of Brick work in cement mortar in substructure of Slab culverts	cum					-
d	Dismantling of Brick work in cement mortar	cum					-
e	Removing all type of hume pipes and stacking within a lead of 1000 metres including earthwork and dismantling of masonry works.						-
	(i)Above 600 mm to 900 mm dia	m					397.55
vii	**Dismantling of Flexible Pavements**						
	Dismantling of flexible pavements and disposal of dismantled materials up to a lead of 1000 metres, stacking serviceable and unserviceable materials separately	cum					
a	Bituminous courses (5.5m Width)		1.00	9.142	5.5	0.05	2.51
a	Bituminous courses (3.5m Width)		1.00	45.57	3.5	0.05	7.97
1.04	**Dismantling of Kilometre Stone**						
	Dismantling of kilometre stone including cutting of earth, foundation and disposal of dismantled material with all lifts and lead upto 1000 m and back filling of pit.	no.					
i	5th KM stone		20.00				20.00
ii	Ordinary KM Stone		68.00				68.00
iii	Hectometre Stone		0.00				0.00

QUANTITY CALCULATION OF PAVEMENT LAYERS FOR WIDENING OF EXISTING ALIGNMENT

Type of TCS Applicable	Length (m)	Crust Details	Width of Layers	Thickness of Layers	Quantity	Total Quantity
Type-I	19,056.0	BC	7.000	0.050	6,669.60	6,669.60
	19,056.0	SAMI Interface	7.000		133,392.00	133,392.00
	19,056.0	CT BASE	7.000	0.180	24,010.56	24,010.56
	19,056.0	CT SUB BASE	13.420	0.250	63,932.88	63,932.88
	19,056.0	SUBGRADE	10.670	0.500	101,663.76	101,663.76
	19,056.0	EARTHEN SHOULDER	0.470		8,956.32	8,956.32
	19,056.0	Hard Shoulder with GSB material	3.000	0.230	13,148.64	13,148.64
	19,056.0	Prime Coat	7.000		133,392.00	133,392.00
Type-II	21,508.0	BC	10.000	0.050	10,754.00	10,754.00
	21,508.0	SAMI Interface	10.000		215,080.00	215,080.00
	21,508.0	CT BASE	10.000	0.180	38,714.40	38,714.40
	21,508.0	CT SUB BASE	10.000	0.250	53,770.00	53,770.00
	21,508.0	SUBGRADE	5.750	0.500	61,835.50	61,835.50
	21,508.0	EARTHEN SHOULDER	0.000		-	-
	21,508.0	Hard Shoulder with GSB material	0.000	0.000	-	-
	21,508.0	Prime Coat	10.000		215,080.00	215,080.00
Type-III	6,038.0	BC	7.000	0.050	2,113.30	2,113.30
	6,038.0	SAMI Interface	7.000		42,266.00	42,266.00
	6,038.0	CT BASE	7.000	0.180	7,607.88	7,607.88
	6,038.0	CT SUB BASE	11.480	0.250	17,329.06	17,329.06
	6,038.0	SUBGRADE	7.730	0.500	23,336.87	23,336.87
	6,038.0	EARTHEN SHOULDER	0.205		1,237.79	1,237.79
	6,038.0	Hard Shoulder with GSB material	3.000	0.230	4,166.22	4,166.22
	6,038.0	Prime Coat	7.000		42,266.00	42,266.00
Type-IV	6,170.0	BC	7.000	0.050	2,159.50	2,159.50
	6,170.0	SAMI Interface	7.000		43,190.00	43,190.00
	6,170.0	CT BASE	7.000	0.180	7,774.20	7,774.20
	6,170.0	CT SUB BASE	13.420	0.250	20,700.35	20,700.35
	6,170.0	SUBGRADE	14.920	0.500	46,028.20	46,028.20
	6,170.0	EARTHEN SHOULDER	0.470		2,899.90	2,899.90
	6,170.0	Hard Shoulder with GSB material	3.000	0.230	4,257.30	4,257.30
	6,170.0	Prime Coat	7.000		43,190.00	43,190.00
Type-V	1,940.0	BC	7.000	0.050	679.00	679.00
	1,940.0	SAMI Interface	7.000		13,580.00	13,580.00
	1,940.0	CT BASE	7.000	0.180	2,444.40	2,444.40
	1,940.0	CT SUB BASE	13.200	0.250	6,402.00	6,402.00
	1,940.0	SUBGRADE	14.700	0.500	14,259.00	14,259.00
	1,940.0	EARTHEN SHOULDER	0.470		911.80	911.80
	1,940.0	Hard Shoulder with GSB material	3.000	0.230	1,338.60	1,338.60
	1,940.0	Prime Coat	7.000		13,580.00	13,580.00

QUANTITY CALCULATION OF PIPE CULVERTS

Number of Culverts			43	8	
Item No.	**Description**	**Unit**	**1x1200**	**2x1200**	**Total Qty.**
1.01	**Excavation for Structures**				
	Earth work in excavation of foundation of structures as per drawing and technical specification, including setting out, construction of shoring and bracing, removal of stumps and other deleterious matter, dressing of sides and bottom and backfilling with approved material.	Cum	49.07	73.57	**2698.38**
1.02	Providing 1 st class bedding below pipes with graded sand or other granular materials passing through 5.6 mm sieve as per vlause 2904	Cum	20.96	37.13	**1198.39**
1.03	Plain/Reinforced Cement Concrete in Open Foundation complete as per Drawing and Technical Specifications.				
	PCC Grade M15	Cum	3.59	4.61	**191.09**
1.04	Plain cement concrete in sub-structure complete as per drawing and Technical Specifications				
	PCC Grade M20	Cum	24.44	30.59	**1295.66**
1.05	Laying Reinforced Cement Concrete Pipe NP4 on First Class Bedding				
	Single Row	Rm	15	-	**645.0**
	Double Row	Rm	-	15	**120**
1.06	Providing and laying Pitching on slopes laid over prepared filter media including boulder apron laid dry in front of toe of embankment complete as per drawing and Technical specifications	Cum	8.38	8.38	**427.45**
1.07	Providing and laying Filter material underneath pitching in slopes complete as per drawing and Technical specification	Cum	4.19	4.19	**213.72**
1.08	Providing and laying boulders apron on river bed for protection against scour with stone boulders weighing not less than 40 kg each complete as per drawing and Technical specification.	Cum	3.72	4.88	**199.01**

DETAILED ESTIMATE OF BOX CULVERT

QUANTITY CALCULATION OF BOX CULVERT												
		Number of Culvert =		**85**	**2**	**8**	**1**	**1**	**1**	**2**	**1**	
Sl. No.	**Ref. to MoRTH Spec.**	**Item Description**	**Unit**	**1x1.5 x1.5**	**1x1.5x2.0**	**1x2.0x1.5**	**1x2.5x2.5**	**1x2.0x2.0**	**1x3.0x2.5**	**1x3.0x3.0**	**1x5.0x4.0**	**Total Quantity**
		FOUNDATION										
1	**304**	**Excavation for Structures** Earthwork in excavation for structures as per drawing and technical specifications Clause 305.1 including setting out, construction of shoring and bracing, removal of stumps and other deleterious material and disposal upto a lead of 50 m, dressing of sides and bottom and backfilling in trenches with excavated suitable material.										
		I. Ordinary Soil										
		i) Upto 3m depth	Cum	172.284	211.521	184.923	295.070	231.779	309.306	373.886	590.308	**18720.78**
2	**1500, 1700 & 2100**	Providing and laying of PCC M15 levelling course below bottom Slab & Retaning wall & Curtain wall.	Cum	10.128	12.575	11.040	18.962	13.920	20.297	24.245	41.294	**1117.29**
		SUBSTRUCTURE										
3	**1500, 1700 & 2200**	R.C.C. grade M 25 in Sub Structure complete as per Dwg & Tech Specification.										
		i) Upto 5m height (Using Concrete Mixer)	Cum	35.337	45.829	35.280	70.706	46.457	67.688	90.696	179.901	**3923.67**
		ii) From 5m upto 10m height (Using Concrete Mixer)	Cum	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.00**
4	**1600 & 2200**	Supplying, fitting and placing HYSD bar reinforcement (Fe-500) in substructrue complete as per drawings and technical specification Clauses 1002, 1005, 1010 & 1202	t	3.349	4.321	3.340	6.710	4.368	6.404	8.480	16.831	**371.33**
5	**2706 & 2200**	**Providing weepholes** in brick masonry/stone masonry, plain/reinforced concrete abutment, wing wall, return wall with 100 mm dia AC pipe extending through the full width of the structures with slope of 1(V):20(H) towards drawing face complete as per drawing and technical specification Clauses 614, 709, 1204.3.7	Nos	30	62	26	62	54	62	102	156	**3420.00**

DETAILED ESTIMATE OF BOX CULVERT

Sl. No.	Ref. to MoRTH Spec.	Item Description	Unit	1x1.5 x1.5	1x1.5x2.0	1x2.0x1.5	1x2.5x2.5	1x2.0x2.0	1x3.0x2.5	1x3.0x3.0	1x5.0x4.0	Total Quantity
6	2200	**Backfilling** behind abutment, wing wall and retaining wall complete as per drawings & technical specification Clause 1204.3.8										
		I) Sandy Material	Cum	86.22	148.95	71.54	238.99	122.58	229.51	289.80	492.51	**9861.71**
7	2200	**Providing and laying filter media** with granular crushed aggregates as per specification to a thickness of not less than 600 mm with smaller size towards the soil and bigger size towards the wall and providing over the entire surface behind abutment, wing wall, return wall to the full height, compacted to firm condition complete as per drawing and technical specification Clause 1204.3.8	Cum	51.678	66.708	45.367	86.400	59.287	84.191	97.455	139.860	**5453.63**
		SUPERSTRUCTURE										
8	1500 &1600 1700	Providing and laying reinforced cement concrete in superstructure complete as per drawing and technical specifications Clauses 800, 1205.4 and 1205.5. **RCC M-25**										
		Up to 5m height	Cum	4.680	4.680	5.513	11.160	5.513	9.450	9.625	22.138	**518.77**
		Height from 5m to 10m	Cum	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.00**
9	1600	Supplying, fitting and placing HYSD bar reinforcement (Fe 500) in superstructrue complete as per drawings and technical specification Clauses 1002, 1010 & 1202	t	0.468	0.468	0.551	1.116	0.551	0.945	0.963	2.214	**51.88**
10	2702	Providing and laying cement concrete **wearing course M30 grade** including reinforcement complete as per drawing and technical specifications Clauses 800 and 1206.3	Cum	1.755	1.755	1.838	2.790	1.838	3.150	2.888	4.744	**185.68**
11	2703, 1500, 1600 & 1700	**Construction of R.C.C. railing** of M 25 grade in cast-in-situ with 20 mm nominal size aggregate, true to line and grade, tolerance of vertical railing post not to exceed 1 in 500, centre-to-centre spacing between vertical posts not to exceed 2000 mm as per drawing and technical specifications Clauses 800, 900 and 1208.3	m	3.900	3.900	4.900	6.200	4.900	7.000	7.000	11.500	**422.10**

DETAILED ESTIMATE OF BOX CULVERT

Sl. No.	Ref. to MoRTH Spec.	Item Description	Unit	1x1.5 x1.5	1x1.5x2.0	1x2.0x1.5	1x2.5x2.5	1x2.0x2.0	1x3.0x2.5	1x3.0x3.0	1x5.0x4.0	Total Quantity
12	2705	**Drainage Spouts** complete as per drawing and technical specifications Clause 1209	No	1	1	1	1	1	1	1	2	**102.00**
		PROTECTION WORK										
13	1500, 1700 & 2100	P.C.C. grade M-15 in Curtain Wall complete as per Dwg & Tech Specification.	cum	14.492	17.035	16.314	23.730	18.857	24.874	27.544	40.341	**1559.32**
14	2505	Providing and laying flooring laid over cement concrete bedding complete as per drawing and technical specification Clause 1303. **Rubble Stone laid in Cement Mortar 1:3**	Cum	6.627	9.690	7.932	17.955	11.358	19.015	24.405	49.623	**792.88**
15	2503	Providing and laying boulder apron for bed protection with stone boulders of minimum size and weight as per Table 1300.1, no fragment weighing less than 25 kg laid dry complete as per drawing and technical specifications Clause 1301.	Cum	19.879	23.366	22.378	32.550	25.866	34.119	37.781	55.335	**2138.88**
16	2504	Providing and laying **boulder pitching on slopes** laid over prepared filter media as per drawing and technical specifications Clause 1302	cum	7.365	12.335	7.584	19.981	12.617	18.925	26.920	48.226	**865.00**
17	2504	Providing and laying **filter material underneath pitching** in slopes complete as per drawing and technical specifications Clause 1302	cum	3.683	6.168	3.792	9.991	6.309	9.463	13.460	24.113	**432.50**

Bill No 7: Drainage and Protective works

Item No.	SOR Ref No	Description	Unit	No.	Length (m)	Breadth (m)	Depth (m)	Quantity
		Drainage works						
7.01	3.6 (ii)	**Unlined Drains :-** Earth work in excavation in trenches in unlined drain as per drawing and technical specification, including setting out, construction of shoring and bracing, removal of stumps and other deleterious matter, dressing of sides and bottom and backfilling with approved material.	cum	2.00	27,166.00		0.48	26,079.36
7.01	3.6 (ii)	**Unlined Drains :-** Earth work in excavation in trenches in unlined drain as per drawing and technical specification, including setting out, construction of shoring and bracing, removal of stumps and other deleterious matter, dressing of sides and bottom and backfilling with	cum	1.00	630.00		0.48	302.40
7.02		**Lined PCC Drains:-** Providing covered RCC drain in urban areas excluding excavation as per drawing and technical specifications section 1500,1600,1700.						
(a)	3.6 (ii)	Earth work in excavation of foundation of structures as per drawing and technical specification, including setting out, construction of shoring and bracing, removal of stumps and other deleterious matter, dressing of sides and bottom and backfilling with approved material.	cum	1.00	-	1.20	1.40	-
		PCC Grade M15						
(b)	12.8 A	Bottom Slab	cum	1.00	-	0.70	0.10	-
(c)	12.8 B	Side Wall	cum	1.00	-	0.10	1.30	-
7.03		**Lined RCC Open Drains:-** Providing covered RCC drain in urban areas excluding excavation as per drawing and technical specifications section 1500,1600,1700.						
(a)	3.6 (ii)	Earth work in excavation of foundation of structures as per drawing and technical specification, including setting out, construction of shoring and bracing, removal of stumps and other deleterious matter, dressing of sides and bottom and backfilling with approved material.	cum	2.00	21,508.00	1.70	1.50	109,690.80
(b)	12.8 A	PCC Grade M15 in levelling course	cum	2.00	21,508.00	1.70	0.08	5,484.54
(c)	12.8 B	Top Slab	cum	2.00	21,508.00	1.50	0.10	6,452.40
(d)	12.8 C	Bottom Slab	cum	2.00	21,508.00	1.50	0.10	6,452.40
(e)	12.8 D	Wall	cum	2.00	21,508.00	0.15	1.30	8,388.12
(f)	12.40	HYSD Steel	MT	1.00		x 60 kg per cum		1,277.58

Bill No 7: Drainage and Protective works							
Item No.	**Description**	**Unit**	**No.**	**Length**	**Width**	**Depth**	**Qty**
	PROTECTION WORK						
	Stone masonry work in cement mortar 1:3 for substructure complete as per drawing and Technical Specifications.						
	Breast Wall ,Length =			**5130**		**3.0**	
	Retaining Wall (Avg ht-3.5m) ,Length =			**9044**		**3.0**	
	Retaining Wall (Avg ht-8.5m) ,Length =			**280**		**7.0**	
i	Earth work in excavation						
	For Breast Wall	Cum	1	5130	0.9	1.0	4617.00
	For Retaining Wall	Cum	1	9044	2.3	1.0	20801.20
	For Retaining Wall	Cum	1	280	4.6	1.0	1288.00
ii	Stone masonry work in cement mortar 1:3 for substructure complete as per drawing and Technical Specifications.						
	A.) Random Rubble Masonry						
	For Breast Wall	Cum	1	5130	0.75	3.0	11542.50
	For Retaining Wall	Cum	1	9044	1.4	3.0	37984.80
	For Retaining Wall	Cum	1	280	2.8	7.0	5488.00
iii	Providing weep holes in Brick masonry/Plain/ Reinforced concrete abutment, wing wall/ return wall with 100 mm dia AC pipe, extending through the full width of the structure with slope of 1V :20H towards drawing foce. Complete as per drawing and Technical Specifications						
	For Breast Wall	No.	1	5130			5130.00
	For Retaining Wall	No.	1	9044			9044.00
	For Retaining Wall	No.	1	280			280.00
iv	Back filling behind abutment, wing wall and return wall complete as per drawing and Technical Specification						
	For Breast Wall	Cum	1	5130	0.3	3.0	4617.00
	For Retaining Wall	Cum	1	9044	0.3	3.0	8139.60
	For Retaining Wall	Cum	1	280	0.3	7.0	588.00
v	Providing and laying of Filter media with granular materials/stone crushed aggregates satisfying the requirements laid down in clause 2504.2.2. of MoRTH specifications to a thickness of not less than 600 mm with smaller size towards the soil and bigger size towards the wall and provided over the entire surface behind abutment, wing wall and return wall to the full height compacted to a firm condition complete as per drawing and Technical Specification.						
	For Breast Wall	Cum	1	5130	0.3	3.0	4617.00
	For Retaining Wall	Cum	1	9044	0.3	3.0	8139.60
	For Retaining Wall	Cum	1	280	0.3	7.0	588.00

QUANTITY CALCULATION- MISC ITEMS

Sl. No.	Description	Unit	Nos.	Area (Sqm.)	Thickness of Layers	Quantity
MINOR JUNCTION						
1	Excavation in Soil using Hydraulic Excavator	Cum	52	800.0	0.200	8,320.00
2	Construction of Embankment with Material Deposited from Roadway Cutting	Cum		50% of Excavated Qty		4,160.00
3	Construction of Embankment with Material obtained from Borrowpits	Cum	52	800.0	0.200	8,320.00
4	SUBGRADE	Cum	52	800.0	0.500	20,800.00
5	SHOULDER	Cum	52	200.0	0.300	3,120.00
6	CT Sub Base	Cum	52	600.0	0.250	7,800.00
7	CT Base	Cum	52	600.0	0.180	5,616.00
8	Prime Coat	Sqm	52	600.0	-	31,200.00
10	Sami Interface	Sqm	52	600.0		31,200.00
11	BC	Cum	52	600.0	0.050	1,560.00
12	Cement Concrete M20 Kerb	Rm	52	60.0	-	3,120.00
13	Construction of Median with Soil from Roadway cutting	Cum	52	45.0	0.050	117.00
14	Providing & Laying Chequered Tiles	Sqm	52	45.0	-	2,340.00

QUANTITY CALCULATION- MISC ITEMS

Sl. No.	Description	Unit	Nos.	Area (Sqm.)	Thickness of Layers	Quantity
BUS SHELTER						
1	Excavation in Soil using Hydraulic Excavator	Cum	16	838.0	0.200	2,681.60
2	Construction of Embankment with Material Deposited from Roadway Cutting	Cum		50% of Excavated Qty		1,340.80
3	Construction of Embankment with Material obtained from Borrowpits	Cum	16	838.0	0.200	2,681.60
4	SUBGRADE	Cum	16	838.0	0.500	6,704.00
5	SHOULDER	Cum	16	434.0	0.300	2,083.20
6	CT Sub Base	Cum	16	404.0	0.250	1,616.00
7	CT Base	Cum	16	404.0	0.180	1,163.52
8	Prime Coat	Sqm	16	404.0	-	6,464.00
10	Sami Interface	Sqm	16	404.0		6,464.00
11	BC	Cum	16	404.0	0.050	323.20
12	Cement Concrete M20 Kerb	Rm	16	180.0	-	2,880.00
13	Construction of Median with Soil from Roadway cutting	Cum	16	456.5	0.050	365.20
14	Providing & Laying Chequered Tiles	Sqm	16	456.5	-	7,304.00

TRAFFIC SIGNS, MARKINGS & OTHER ROAD APPURTENANCES FOR EXISTING ALIGNMENT

Item No	Description	Unit	Nos.	Length	Width	Depth	Quantity
9.1	**Road Marking**						
	Providing and laying of hot applied thermoplastic compound 2.5 mm thick including reflectorising glass beads @ 250 gms per sqm area, thickness of 2.5 mm is exclusive of surface applied glass beads as per IRC:35 .The finished surface to be level, uniform and free from streaks and holes.						
	For Edge Marking	Sqm	4	54712	0.150		32827.20
	For Centre line Marking	Sqm	2	54712	0.100		10942.40
9.2	**Retro-Reflectorised Traffic Signs**						
	Providing and fixing of retro- reflectorised cautionary, mandatory and informatory sign as per IRC :67 made of high intensity grade sheeting vide clause 801.3, fixed over aluminium sheeting, 1.5 mm thick supported on a mild steel angle iron post 75 mm x 75 mm x 6 mm firmly fixed to the ground by means of properly designed foundation with M15 grade cement concrete 45 cm x 45 cm x 60 cm, 60 cm below ground level as per approved drawing						
i	90 cm equilateral triangle	No	230				230.00
ii	60 cm equilateral triangle	No	30				30.00
iii	60 cm circular	No	30				30.00
iv	80 mm x 60 mm rectangular	No	30				30.00
v	60 cm x 45 cm rectangular	No	130				130.00
vi	60 cm x 60 cm square	No	30				30.00
vii	90 cm high octagon	No	30				30.00
9.3	**Direction and Place Identification Signs Board.**						
	Providing and erecting direction and place identification retro-reflectorised sign as per IRC:67 made of high intensity grade sheeting vide clause 801.3, fixed over aluminium sheeting, 2 mm thick with area not exceeding 0.9 sqm supported on a mild steel single angle iron post 75 x 75 x 6 mm firmly fixed to the ground by means of properly designed foundation with M15 grade cement concrete 45 x 45 x 60 cm, 60 cm below ground level as per approved drawing						
i	up to 0.9 sqm size	Sqm	70	1.50	0.60	-	63.00
ii	more than 0.9 sqm size	Sqm	20	1.50	0.80	-	24.00

Item No	Description	Unit	Nos.	Length	Width	Depth	Quantity
9.4	**Metal Beam Crash Barrier** **Type - A, "W" : Metal Beam Crash Barrier**						
	Providing and erecting a "W" metal beam crash barrier comprising of 3 mm thick corrugated sheet metal beam rail, 70 cm above road/ground level, fixed on ISMC series channel vertical post, 150 x 75 x 5 mm spaced 2 m centre to centre, 1.8 m high, 1.1 m below ground/road level, all steel parts and fitments to be galvanised by hot dip process, all fittings to conform to IS:1367 and IS:1364, metal beam rail to be fixed on the vertical post with a spacer of channel section 150 x 75 x 5 mm, 330 mm long complete as per clause 810						
	For High Embankment	Rm	1	8439.0			8439.00
	For Curved Portion	Rm	1	2250.0			2250.00
9.5	**Kilometre Stone**						
	Reinforced cement concrete M15grade kilometre stone of standard design as per IRC:8-1980, fixing in position including painting and printing etc						
i	**5th kilometre stone (precast)**	Nos.	20				20
ii	**Ordinary kilometer stone (precast)**	Nos.	68				68
iii	**Hectometer stone (precast)**	Nos.	540				540
9.6	**Boundary Pillar**						
	Reinforced cement concrete M15 grade boundary pillars of standard design as per IRC:25-1967, fixed in position including finishing and lettering but excluding painting	Nos.	540				540

BRIDGE AT Ch. 119+054

COST

Cost Of Bridge

Sl. No.	MoRT&H Ref No.	Item Description	Unit	Quantity	Rate	Quantity
		FOUNDATION				
1	**304**	**Excavation for Structures**				
		Earthwork in excavation for structures as per drawing and technical specifications Clause 305.1 including setting out, construction of shoring and bracing, removal of stumps and other deleterious material and disposal upto a lead of 50 m, dressing of sides and bottom and backfilling in trenches with excavated suitable material.				
	I.	Ordinary Soil				
		i) Upto 3m depth (For open Foundation)	Cum	532.98	75.75	40,373.24
2	**1100 & 1700**	Providing and laying of PCC M15 levelling course 100mm thick below Foundation.				
		II. PCC Grade M-15 (Levelling Course for Open Foundation)	Cum	15.83	13146.16	208,156.30
3	**1500, 1700 & 2100**	R.C.C. grade M 35 in Open Foundation complete as per Dwg & Tech Specification.	Cum	125.12	16002.44	2,002,225.29
4	**1600**	Supplying, fitting and placing **HYSD bar reinforcement in foundation** complete as per drawings and technical specifications Clauses 1000 and 1202	tone	10.01	67106.42	671,708.42
		SUBSTRUCTURE				
5	**1500, 1700 & 2200**	**R.C.C. grade M-35** in Substructure complete as per Dwg & Tech Specification				
		From 5m upto 10m height (Using Concrete Mixer)	Cum	5.82	16203.43	94,303.96
		From 5m upto 10m height (Using Concrete Mixer)	Cum	537.80	16203.43	8,714,253.26
6	**1600 & 2200**	Supplying, fitting and placing HYSD bar reinforcement (Fe 415) in substructrue complete as per drawings and technical specification Clauses 1002, 1005, 1010 & 1202	tone	58.22	67310.44	3,918,578.23
7	**2706 & 2200**	**Providing weepholes** in brick masonry/stone masonry, plain/reinforced concrete abutment, wing wall, return wall with 100 mm dia AC pipe extending through the full width of the structures with slope of 1(V):20(H) towards drawing face complete as per drawing and technical specification Clauses 614, 709, 1204.3.7	Nos	166	154.53	25,651.98
8	**2200**	**Backfilling** behind abutment, wing wall and return wall complete as per drawings & technical specification Clause 1204.3.8				
	I)	With Sandy Material	Cum	1425.54	7103.33	10,126,084.08
9	**2200**	**Providing and laying filter media** with granular crushed aggregates as per specification to a thickness of not less than 600 mm with smaller size towards the soil and bigger size towards the wall and providing over the entire surface behind abutment, wing wall, return wall to the full height, compacted to firm condition complete as per drawing and technical specification Clause 1204.3.8	Cum	1609.71	2760.33	4,443,321.70

Cost Of Bridge

Sl. No.	MoRT&H Ref No.	Item Description	Unit	Quantity	Rate	Quantity
		SUPERSTRUCTURE				
10	**1500, 1600 & 1700**	Providing and laying reinforced cement concrete in superstructure complete as per drawing and technical specifications Clauses 800, 1205.4 and 1205.5. **RCC M-35**	Cum	109.65	18060.82	1,980,368.91
11	**1600**	Supplying, fitting and placing HYSD bar reinforcement (Fe 500) in superstructrue complete as per drawings and technical specification Clauses 1002, 1010 & 1202	tone	15.35	68867.86	1,057,190.52
12	**2702**	Wearing Coarse (65mm thick) comprising of Bituminous Concrete overlaid with 25mm thick Mastic asphalt as per Technical Specification Clauses 512, 515 & 2702.				
		Mastic Layer	sqm.	90	343.40	30,906.00
		Bituminous Layer	cum	3.6	13408.76	48,271.54
13		Construction of R.C.C. Crash Barrier of M 40 grade in cast-in-situ with 20 mm nominal size aggregate, true to line and grade, tolerance of vertical railing post not to exceed 1 in 500, centre-to-centre spacing between vertical posts not to exceed 2000 mm as per drawing and technical specifications Clauses 800, 900 and 1208.3	Rm	38	6442.79	244,826.02
14		Cast in Situ Cement Concrete M20 Safety kerb (Construction of cement concrete kerb with top and bottom width 115 and 165 mm respectively, 250 mm high in M 20 grade PCC on M-10 grade foundation 150 mm thick, foundation having 50 mm projection beyond kerb stone, kerb stone laid with kerb laying machine, foundation concrete laid manually, all complete as per clause 408)	Rm	38	709.02	26,942.76
	1500, 1700 & 2100	**Plain Cement Concrete in footpath** complete as per Drawing and Technical Specifications.	cum	0	13146.16	0.00
15		PCC Filling in slab	cum	51.4368	13146.16	676,196.40
16	**2705**	**Drainage Spouts** complete as per drawing and technical specifications Clause 1209	No	5	1010.00	5,050.00
17	**2700**	P.C.C. M-15 ordinary grade (1:2.5:5) levelling course below approach slab complete as per drawing and technical specificatios Clauses 800 & 1211.	cum	5.475	12641.16	69,210.35
18	**1500, 1600, 1700 & 2704**	Reinforced Cement Concrete M-30 grade approach slab including reinforcement and formwork complete as per drawing and technical specifications Clauses 800 and 1211	cum	15.75	18192.12	286,525.89
19	**2607**	Strip Seal Expansion Joint (Providing and laying of a strip seal expansion joint catering to maximum horizontal movement upto 70 mm, complete as per approved drawings and standard specifications to be installed by the manufacturer/supplier or their authorised representative ensuring compliance to the manufacturer's instructions for installation.)	m	17	11827.10	201,060.70

Cost Of Bridge

Sl. No.	MoRT&H Ref No.	Item Description	Unit	Quantity	Rate	Quantity
20		**White Washing of Parapet Walls** White washing two coats on parapet walls and tree trunks including preparation of surface by cleaning, scapping, etc. as pre technical specification Clause 1915	sqm	0	87.87	0.00
		PROTECTION WORK				
21	**2504**	Providing and laying **boulder pitching on slopes** laid over prepared filter media as per drawing and technical specifications Clause 1302	Cum	293.7029	3967.28	1,165,201.45
22	**2504**	Providing and laying **filter material underneath pitching** in slopes complete as per drawing and technical specifications Clause 1302	Cum	146.85	3005.76	441,400.14
		Total Cost of Structure =				**36,477,807.14**

BOQ

QUANTITY CALCULATION OF SOLID SLAB BRIDGE									
Sl. No.	**MoRT&H Ref No.**	**Item Description**	**Unit**	**Nos**	**Length (m)**	**Width (m)**	**Depth/ Height (m)**	**AREA (Sqm.)**	**Quantity**
		FOUNDATION							
1	**304**	**Excavation for Structures**							
		Earthwork in excavation for structures as per drawing and technical specifications Clause 305.1 including setting out, construction of shoring and bracing, removal of stumps and other deleterious material and disposal upto a lead of 50 m, dressing of sides and bottom and backfilling in trenches with excavated suitable material.							
	I.	Ordinary Soil							
		i) 3 to 6m (For open Foundation)							
		Abutment	Cum	2	9.00	9.4	3.15		532.98
		Pier	Cum	0	0.00	0	0.00		0.00
		Sub-Total =	Cum						**532.98**
2	**1100 & 1700**	Providing and laying of PCC M15 levelling course 100mm thick below Foundation							
		II. PCC Grade M-15 (Levelling Course for Open							
		Abutment	Cum	2	8.70	9.1	0.100		15.83
		Pier	Cum	0	0.00	0	0.000		0.00
		Sub-Total =	Cum						**15.83**
3	**1500, 1700 & 2100**	R.C.C. grade M 35 in Open Foundation complete as per Dwg & Tech Specification.							
		Abutment							
		i) Rectangular Portion	Cum	2	8.50	8.90	0.60		90.78
		ii) Trapezoidal Portion	Cum	2	8.50	10.10	0.40		34.34
		Pier							
		i) Rectangular Portion	Cum	0	0.00	0.00	0.00		0.00
		ii) Trapezoidal Portion	Cum	0	0.00	0.00	0.00		0.00
		Sub-Total =	Cum						**125.12**
4	**1600**	Supplying, fitting and placing **HYSD bar reinforcement in foundation** complete as per drawings and technical specifications Clauses 1000 and 1202							
	(i)	For open Foundation @ 80Kg per cum of Concrete in Item 3	t		125.12				10.010
		Sub-Total =	t						**10.01**
		SUBSTRUCTURE							
5	**1500, 1700 & 2200**	**R.C.C. grade M-35** in Substructure complete as per Dwg & Tech Specification							
	A	**For Abutments (A1 & A2)**							
		From 5m upto 10m height							
	(a)	Dirt Wall	cum	2	8.50	0.30	1.000		5.100
	(b)	Bracket							
		(i) Bracket rectangle portion	cum	2	7.50	0.20	0.18		0.540
		(ii) Bracket triangle portion	cum	2	7.50	0.20	0.12		0.180
		Sub-Total =	cum						**5.82**
		From 5m upto 10m height							
	(d)	Abutment Cap	cum	2	8.50	1.22	0.60		12.444
	(e)	Abutment Shaft	cum	2	8.50	1.00	11.07		188.190
		Sub-Total =	cum						**200.63**

Sl. No.	MoRT&H Ref No.	Item Description	Unit	Nos	Length (m)	Width (m)	Depth/ Height (m)	AREA (Sqm.)	Quantity
	B	**For Piers**							
		Upto 5m height							
	(b)	Pier Cap							
		i) Rect. portion	cum	0	0.00	0.00	0.00		0.000
		ii) Pyramidal Frustum	cum	0	0.00	0.00	0.00		0.000
	(c)	Pier Shaft (Wall Type)							
		i) Half Circular Portion	cum	0	-	-	0.00	0.00	0.00
		ii) Rectangular Portion	cum	0	0.00	0.00	0.00		0.00
		Sub-Total =	cum						**0.00**
	C	Return Wall (**Upto 5 to 10m height**)							
		i) Rect. Portion	cum	4	5.30	0.50	12.94		137.11
	D	Independent Retaining Wall (5 to 10m Height)							
		Foundation							
		1 st. Rectangular portion.	cum	4	6.00	4.00	0.60		57.60
		2 nd. Rectangular portion.	cum	4	6.00	0.60	0.50		7.20
		1 st. Trangular portion	cum	4	6.00	2.30	0.50		13.80
		2 st. Trangular portion	cum	4	6.00	1.10	0.50		6.60
		Retaining Wall Stem	cum	4	6.00	0.45	10.64		114.86
		Sub-Total =	cum						**337.17**
6	**1600 & 2200**	Supplying, fitting and placing HYSD bar reinforcement (Fe 415) in substructrue complete as per drawings and technical specification Clauses 1002, 1005, 1010 & 1202							
	(i)	For Substructure @ 135Kg per cum of Concrete	t		206.45				27.871
	(ii)	For Return and Retaining Wall @ 90 Kg per cum of Concrete	t		337.17				30.345
		Sub-Total =	cum						**58.22**
7	**2706 & 2200**	**Providing weepholes** in brick masonry/stone masonry, plain/reinforced concrete abutment, wing wall, return wall with 100 mm dia AC pipe extending through the full width of the structures with slope of 1(V):20(H) towards drawing face complete as per drawing and technical specification Clauses 614, 709, 1204.3.7	Nos	166	-	-	-	-	166
8	**2200**	**Backfilling** behind abutment, wing wall and return wall complete as per drawings & technical specification Clause 1204.3.8							
	II)	**With Sandy Material**							
	(i)	Behind Abutment	cum	2	6.3	113.1			1425.54
		Sub-Total =	cum						**1425.54**
9	**2200**	**Providing and laying filter media** with granular crushed aggregates as per specification to a thickness of not less than 600 mm with smaller size towards the soil and bigger size towards the wall and providing over the entire surface behind abutment, wing wall, return wall to the full height, compacted to firm condition complete as per drawing and technical specification Clause 1204.3.8							
	(i)	Behind Abutment	cum	2	6.3	4.7	12.735		754.17
	(ii)	Behind Independent Retaining Wall	cum	2	6.00	7.0	10.185		855.54
		Sub-Total =	cum						**1609.71**

Sl. No.	MoRT&H Ref No.	Item Description	Unit	Nos	Length (m)	Width (m)	Depth/ Height (m)	AREA (Sqm.)	Quantity
		SUPERSTRUCTURE							
10	**1500, 1600 & 1700**	Providing and laying reinforced cement concrete in superstructure complete as per drawing and technical specifications Clauses 800, 1205.4 and 1205.5. **RCC M-35**							
	(i)	Solid Slab	cum	1	12.000	8.50	1.075		109.650
		Sub-Total =	cum						**109.65**
11	**1600**	Supplying, fitting and placing HYSD bar reinforcement (Fe 500) in superstructrue complete as per drawings and technical specification Clauses 1002, 1010 & 1202							
		For Solid slab Superstructure @ 140Kg per cum of Concrete	t		109.650				15.35
		Sub-Total =	t						**15.35**
12	**2702**	Wearing Coarse (65mm thick) comprising of Bituminous Concrete overlaid with 25mm thick Mastic asphalt as per Technical Specification Clauses 512, 515 & 2702.							
		Mastic Layer	sqm.	1	12.00	7.50		90.0	
		Bituminous Layer	cum	1	12.00	7.50	0.04		3.6
13		**Construction of R.C.C. Crash Barrier of M 40 grade** in cast-in-situ with 20 mm nominal size aggregate, true to line and grade, tolerance of vertical railing post not to exceed 1 in 500, centre-to-centre spacing between vertical posts not to exceed 2000 mm as per drawing and technical specifications Clauses 800, 900 and 1208.3	m	2	19	-	-		38.000
14		Cast in Situ Cement Concrete M20 Safety kerb (Construction of cement concrete kerb with top and bottom width 115 and 165 mm respectively, 250 mm high in M 20 grade PCC on M-10 grade foundation 150 mm thick, foundation having 50 mm projection beyond kerb stone, kerb stone laid with kerb laying machine, foundation concrete laid manually, all complete as per clause 408)	m	2	19	-	-		38.000
	1500, 1700 & 2100	**Plain Cement Concrete in footpath** complete as per Drawing and Technical Specifications.	cum	0	19	1.5	0.32		0
15		PCC Filling in slab	cum	2	19	7.2	0.188		51.4368
16	**2705**	**Drainage Spouts** complete as per drawing and technical specifications Clause 1209	No	5					5
17	**2700**	P.C.C. M-15 ordinary grade (1:2.5:5) levelling course below approach slab complete as per drawing and technical specificatios Clauses 800 & 1211.	cum	2	3.65	7.5	0.100		5.475
19	**1500, 1600, 1700 & 2704**	Reinforced Cement Concrete M-30 grade approach slab including reinforcement and formwork complete as per drawing and technical specifications Clauses 800 and 1211	cum	2	3.5	7.5	0.30		15.750

Sl. No.	MoRT&H Ref No.	Item Description	Unit	Nos	Length (m)	Width (m)	Depth/ Height (m)	AREA (Sqm.)	Quantity
20	**2607**	Strip Seal Expansion Joint (Providing and laying of a strip seal expansion joint catering to maximum horizontal movement upto 70 mm, complete as per approved drawings and standard specifications to be installed by the manufacturer/supplier or their authorised representative ensuring compliance to the manufacturer's instructions for installation.)	m	2	8.50				17.000
21		**White Washing of Parapet Walls** White washing two coats on parapet walls and tree trunks including preparation of surface by cleaning, scapping, etc. as pre technical specification Clause 1915	sqm	0	19		1.1		0.000
		PROTECTION WORK							
22	**2504**	Providing and laying **boulder pitching on slopes** laid over prepared filter media as per drawing and technical specifications Clause 1302							
	(i)	Behind Abutment (Quadrate Slope)	cum	4	244.75		0.30		293.703
		Sub-Total =	cum						**293.703**
23	**2504**	Providing and laying **filter material underneath pitching** in slopes complete as per drawing and technical specifications Clause 1302							
	(i)	Behind Abutment (Quadrate Slope)	cum	4	244.75		0.15		146.851
		Sub-Total =	cum						**146.85**

BRIDGE AT Ch. 122+096

COST

Cost OF Bridge

Sl. No.	MoRT&H Ref No.	Item Description	Unit	Quantity	Rate	Quantity
		FOUNDATION				
1	**304**	**Excavation for Structures**				
		Earthwork in excavation for structures as per drawing and technical specifications Clause 305.1 including setting out, construction of shoring and bracing, removal of stumps and other deleterious material and disposal upto a lead of 50 m, dressing of sides and bottom and backfilling in trenches with excavated suitable material.				
	I.	Ordinary Soil				
		i) Upto 3m depth (For open Foundation)	Cum	481.95	75.75	36,507.71
2	**1100 & 1700**	Providing and laying of PCC M15 levelling course 100mm thick below Foundation.				
		II. PCC Grade M-15 (Levelling Course for Open Foundation)	Cum	14.27	13146.16	187,569.41
3	**1500, 1700 & 2100**	R.C.C. grade M 35 in Open Foundation complete as per Dwg & Tech Specification.	Cum	157.76	16002.44	2,524,544.93
4	**1600**	Supplying, fitting and placing **HYSD bar reinforcement in foundation** complete as per drawings and technical specifications Clauses 1000 and 1202	tone	12.62	67106.42	846,936.71
		SUBSTRUCTURE				
5	**1500, 1700 & 2200**	**R.C.C. grade M-35** in Substructure complete as per Dwg & Tech Specification				
		From 5m upto 10m height (Using Concrete Mixer)	Cum	5.82	16203.43	94,303.96
		From 5m upto 10m height (Using Concrete Mixer)	Cum	433.75	16203.43	7,028,312.30
6	**1600 & 2200**	Supplying, fitting and placing HYSD bar reinforcement (Fe 415) in substructrue complete as per drawings and technical specification Clauses 1002, 1005, 1010 & 1202	tone	46.78	67310.44	3,148,457.21
7	**2706 & 2200**	**Providing weepholes** in brick masonry/stone masonry, plain/reinforced concrete abutment, wing wall, return wall with 100 mm dia AC pipe extending through the full width of the structures with slope of 1(V):20(H) towards drawing face complete as per drawing and technical specification Clauses 614, 709, 1204.3.7	Nos	126	154.53	19,470.78
8	**2200**	**Backfilling** behind abutment, wing wall and return wall complete as per drawings & technical specification Clause 1204.3.8				
	I)	With Sandy Material	Cum	996.50	7103.33	7,078,485.44
9	**2200**	**Providing and laying filter media** with granular crushed aggregates as per specification to a thickness of not less than 600 mm with smaller size towards the soil and bigger size towards the wall and providing over the entire surface behind abutment, wing wall, return wall to the full height, compacted to firm condition complete as per drawing and technical specification Clause 1204.3.8	Cum	1227.85	2760.33	3,389,273.07

Cost OF Bridge

Sl. No.	MoRT&H Ref No.	Item Description	Unit	Quantity	Rate	Quantity
		SUPERSTRUCTURE				
10	**1500, 1600 & 1700**	Providing and laying reinforced cement concrete in superstructure complete as per drawing and technical specifications Clauses 800, 1205.4 and 1205.5. **RCC M-35**	Cum	109.65	18060.82	1,980,368.91
11	**1600**	Supplying, fitting and placing HYSD bar reinforcement (Fe 500) in superstructrue complete as per drawings and technical specification Clauses 1002, 1010 & 1202	tone	15.35	68867.86	1,057,190.52
12	**2702**	Wearing Coarse (65mm thick) comprising of Bituminous Concrete overlaid with 25mm thick Mastic asphalt as per Technical Specification Clauses 512, 515 & 2702.				
		Mastic Layer	sqm.	90	343.40	30,906.00
		Bituminous Layer	cum	3.6	13408.76	48,271.54
13		Construction of R.C.C. Crash Barrier of M 40 grade in cast-in-situ with 20 mm nominal size aggregate, true to line and grade, tolerance of vertical railing post not to exceed 1 in 500, centre-to-centre spacing between vertical posts not to exceed 2000 mm as per drawing and technical specifications Clauses 800, 900 and 1208.3	Rm	38	6442.79	244,826.02
14		Cast in Situ Cement Concrete M20 Safety kerb (Construction of cement concrete kerb with top and bottom width 115 and 165 mm respectively, 250 mm high in M 20 grade PCC on M-10 grade foundation 150 mm thick, foundation having 50 mm projection beyond kerb stone, kerb stone laid with kerb laying machine, foundation concrete laid manually, all complete as per clause 408)	Rm	38	709.02	26,942.76
	1500, 1700 & 2100	**Plain Cement Concrete in footpath** complete as per Drawing and Technical Specifications.	cum	0	13146.16	0.00
15		PCC Filling in slab	cum	51.4368	13146.16	676,196.40
16	**2705**	**Drainage Spouts** complete as per drawing and technical specifications Clause 1209	No	5	1010.00	5,050.00
17	**2700**	P.C.C. M-15 ordinary grade (1:2.5:5) levelling course below approach slab complete as per drawing and technical specificatios Clauses 800 & 1211.	cum	5.475	12641.16	69,210.35
18	**1500, 1600, 1700 & 2704**	Reinforced Cement Concrete M-30 grade approach slab including reinforcement and formwork complete as per drawing and technical specifications Clauses 800 and 1211	cum	15.75	18192.12	286,525.89
19	**2607**	Strip Seal Expansion Joint (Providing and laying of a strip seal expansion joint catering to maximum horizontal movement upto 70 mm, complete as per approved drawings and standard specifications to be installed by the manufacturer/supplier or their authorised representative ensuring compliance to the manufacturer's instructions for installation.)	m	17	11827.10	201,060.70

Cost OF Bridge

Sl. No.	MoRT&H Ref No.	Item Description	Unit	Quantity	Rate	Quantity
20		**White Washing of Parapet Walls** White washing two coats on parapet walls and tree trunks including preparation of surface by cleaning, scapping, etc. as pre technical specification Clause 1915	sqm	0	87.87	0.00
		PROTECTION WORK				
21	**2504**	Providing and laying **boulder pitching on slopes** laid over prepared filter media as per drawing and technical specifications Clause 1302	Cum	185.0049	3967.28	733,966.28
22	**2504**	Providing and laying **filter material underneath pitching** in slopes complete as per drawing and technical specifications Clause 1302	Cum	92.50	3005.76	278,040.18
		Total Cost of Structure =				**29,992,417.07**

BOQ

QUANTITY CALCULATION OF SOLID SLAB BRIDGE									
Sl. No.	**MoRT&H Ref No.**	**Item Description**	**Unit**	**Nos**	**Length (m)**	**Width (m)**	**Depth/ Height (m)**	**AREA (Sqm.)**	**Quantity**
		FOUNDATION							
1	**304**	**Excavation for Structures**							
		Earthwork in excavation for structures as per drawing and technical specifications Clause 305.1 including setting out, construction of shoring and bracing, removal of stumps and other deleterious material and disposal upto a lead of 50 m, dressing of sides and bottom and backfilling in trenches with excavated suitable material.							
	I.	Ordinary Soil							
		i) 3 to 6m (For open Foundation)							
		Abutment	Cum	2	9.00	8.5	3.15		481.95
		Pier	Cum	0	0.00	0	0.00		0.00
		Sub-Total =	Cum						**481.95**
2	**1100 & 1700**	Providing and laying of PCC M15 levelling course 100mm thick below Foundation							
		II. PCC Grade M-15 (Levelling Course for Open							
		Abutment	Cum	2	8.70	8.2	0.100		14.27
		Pier	Cum	0	0.00	0	0.000		0.00
		Sub-Total =	Cum						**14.27**
3	**1500, 1700 & 2100**	R.C.C. grade M 35 in Open Foundation complete as per Dwg & Tech Specification.							
		Abutment							
		i) Rectangular Portion	Cum	2	8.50	8.00	0.70		95.20
		ii) Trapezoidal Portion	Cum	2	8.50	9.20	0.80		62.56
		Pier							
		i) Rectangular Portion	Cum	0	0.00	0.00	0.00		0.00
		ii) Trapezoidal Portion	Cum	0	0.00	0.00	0.00		0.00
		Sub-Total =	Cum						**157.76**
4	**1600**	Supplying, fitting and placing **HYSD bar reinforcement in foundation** complete as per drawings and technical specifications Clauses 1000 and 1202							
	(i)	For open Foundation @ 80Kg per cum of Concrete in Item 3	t		157.76				12.621
		Sub-Total =	t						**12.62**
		SUBSTRUCTURE							
5	**1500, 1700 & 2200**	**R.C.C. grade M-35** in Substructure complete as per Dwg & Tech Specification							
	A	**For Abutments (A1 & A2)**							
		From 5m upto 10m height							
	(a)	Dirt Wall	cum	2	8.50	0.30	1.000		5.100
	(b)	Bracket							
		(i) Bracket rectangle portion	cum	2	7.50	0.20	0.18		0.540
		(ii) Bracket triangle portion	cum	2	7.50	0.20	0.12		0.180
		Sub-Total =	cum						**5.82**
		From 5m upto 10m height							
	(d)	Abutment Cap	cum	2	8.50	1.22	0.60		12.444
	(e)	Abutment Shaft	cum	2	8.50	1.00	8.36		142.035
		Sub-Total =	cum						**154.48**

Sl. No.	MoRT&H Ref No.	Item Description	Unit	Nos	Length (m)	Width (m)	Depth/ Height (m)	AREA (Sqm.)	Quantity
	B	**For Piers**							
		Upto 5m height							
	(b)	Pier Cap							
		i) Rect. portion	cum	0	0.00	0.00	0.00		0.000
		ii) Pyramidal Frustum	cum	0	0.00	0.00	0.00		0.000
	(c)	Pier Shaft (Wall Type)							
		i) Half Circular Portion	cum	0	-	-	0.00	0.00	0.00
		ii) Rectangular Portion	cum	0	0.00	0.00	0.00		0.00
		Sub-Total =	cum						**0.00**
	C	Return Wall (**Upto 5 to 10m height**)							
		i) Rect. Portion	cum	4	4.69	0.50	10.42		97.74
	D	Independent Retaining Wall (5 to 10m Height)							
		Foundation							
		1 st. Rectangular portion.	cum	4	6.00	4.00	0.60		57.60
		2 nd. Rectangular portion.	cum	4	6.00	0.60	0.50		7.20
		1 st. Trangular portion	cum	4	6.00	2.30	0.50		13.80
		2 st. Trangular portion	cum	4	6.00	1.10	0.50		6.60
		Retaining Wall Stem	cum	4	6.00	0.45	8.92		96.34
		Sub-Total =	cum						**279.28**
6	**1600 & 2200**	Supplying, fitting and placing HYSD bar reinforcement (Fe 415) in substructrue complete as per drawings and technical specification Clauses 1002, 1005, 1010 & 1202							
	(i)	For Substructure @ 135Kg per cum of Concrete	t			160.30			21.640
	(ii)	For Return and Retaining Wall @ 90 Kg per cum of Concrete	t			279.28			25.135
		Sub-Total =	cum						**46.78**
7	**2706 & 2200**	**Providing weepholes** in brick masonry/stone masonry, plain/reinforced concrete abutment, wing wall, return wall with 100 mm dia AC pipe extending through the full width of the structures with slope of 1(V):20(H) towards drawing face complete as per drawing and technical specification Clauses 614, 709, 1204.3.7	Nos	126	-	-	-	-	126
8	**2200**	**Backfilling** behind abutment, wing wall and return wall complete as per drawings & technical specification Clause 1204.3.8							
	II)	**With Sandy Material**							
	(i)	Behind Abutment	cum	2	6.3		79.1		996.50
		Sub-Total =	cum						**996.50**
9	**2200**	**Providing and laying filter media** with granular crushed aggregates as per specification to a thickness of not less than 600 mm with smaller size towards the soil and bigger size towards the wall and providing over the entire surface behind abutment, wing wall, return wall to the full height, compacted to firm condition complete as per drawing and technical specification Clause 1204.3.8							
	(i)	Behind Abutment	cum	2	6.3	4.1	10.020		516.37
	(ii)	Behind Independent Retaining Wall	cum	2	6.00	7.0	8.470		711.48
		Sub-Total =	cum						**1227.85**

Sl. No.	MoRT&H Ref No.	Item Description	Unit	Nos	Length (m)	Width (m)	Depth/ Height (m)	AREA (Sqm.)	Quantity
		SUPERSTRUCTURE							
10	**1500, 1600 & 1700**	Providing and laying reinforced cement concrete in superstructure complete as per drawing and technical specifications Clauses 800, 1205.4 and 1205.5. **RCC M-35**							
	(i)	Solid Slab	cum	1	12.000	8.50	1.075		109.650
		Sub-Total =	cum						**109.65**
11	**1600**	Supplying, fitting and placing HYSD bar reinforcement (Fe 500) in superstructrue complete as per drawings and technical specification Clauses 1002, 1010 & 1202							
		For Solid slab Superstructure @ 140Kg per cum of Concrete	t		109.650				15.35
		Sub-Total =	t						**15.35**
12	**2702**	Wearing Coarse (65mm thick) comprising of Bituminous Concrete overlaid with 25mm thick Mastic asphalt as per Technical Specification Clauses 512, 515 & 2702.							
		Mastic Layer	sqm.	1	12.00	7.50		90.0	
		Bituminous Layer	cum	1	12.00	7.50	0.04		3.6
13		**Construction of R.C.C. Crash Barrier of M 40 grade** in cast-in-situ with 20 mm nominal size aggregate, true to line and grade, tolerance of vertical railing post not to exceed 1 in 500, centre-to-centre spacing between vertical posts not to exceed 2000 mm as per drawing and technical specifications Clauses 800, 900 and 1208.3	m	2	19	-	-		38.000
14		Cast in Situ Cement Concrete M20 Safety kerb (Construction of cement concrete kerb with top and bottom width 115 and 165 mm respectively, 250 mm high in M 20 grade PCC on M-10 grade foundation 150 mm thick, foundation having 50 mm projection beyond kerb stone, kerb stone laid with kerb laying machine, foundation concrete laid manually, all complete as per clause 408)	m	2	19	-	-		38.000
	1500, 1700 & 2100	**Plain Cement Concrete in footpath** complete as per Drawing and Technical Specifications.	cum	0	19	1.5	0.32		0
15		PCC Filling in slab	cum	2	19	7.2	0.188		51.4368
16	**2705**	**Drainage Spouts** complete as per drawing and technical specifications Clause 1209	No	5					5
17	**2700**	P.C.C. M-15 ordinary grade (1:2.5:5) levelling course below approach slab complete as per drawing and technical specificatios Clauses 800 & 1211.	cum	2	3.65	7.5	0.100		5.475
19	**1500, 1600, 1700 & 2704**	Reinforced Cement Concrete M-30 grade approach slab including reinforcement and formwork complete as per drawing and technical specifications Clauses 800 and 1211	cum	2	3.5	7.5	0.30		15.750

Sl. No.	MoRT&H Ref No.	Item Description	Unit	Nos	Length (m)	Width (m)	Depth/ Height (m)	AREA (Sqm.)	Quantity
20	**2607**	Strip Seal Expansion Joint (Providing and laying of a strip seal expansion joint catering to maximum horizontal movement upto 70 mm, complete as per approved drawings and standard specifications to be installed by the manufacturer/supplier or their authorised representative ensuring compliance to the manufacturer's instructions for installation.)	m	2	8.50				17.000
21		**White Washing of Parapet Walls** White washing two coats on parapet walls and tree trunks including preparation of surface by cleaning, scapping, etc. as pre technical specification Clause 1915	sqm	0	19		1.1		0.000
		PROTECTION WORK							
22	**2504**	Providing and laying **boulder pitching on slopes** laid over prepared filter media as per drawing and technical specifications Clause 1302							
	(i)	Behind Abutment (Quadrate Slope)	cum	4	154.17		0.30		185.005
		Sub-Total =	cum						**185.005**
23	**2504**	Providing and laying **filter material underneath pitching** in slopes complete as per drawing and technical specifications Clause 1302							
	(i)	Behind Abutment (Quadrate Slope)	cum	4	154.17		0.15		92.502
		Sub-Total =	cum						**92.50**